Rehydrate Ramsey: Strengthening, Enhancing, and Protecting Water Resources

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City of RAMSEY

Resilient Communities Project
University of Minnesota
Building community-university partnerships for sustainability

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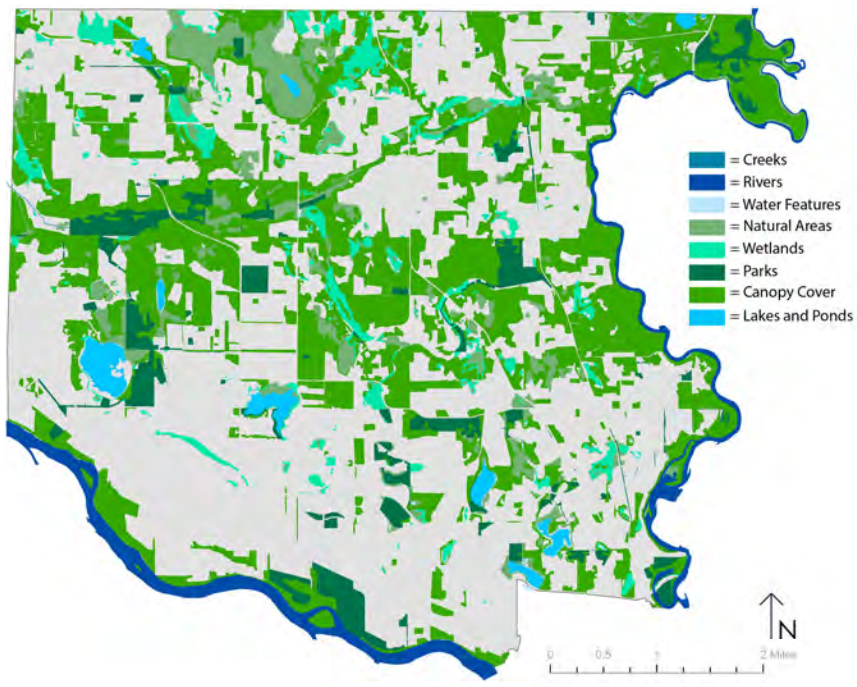
Rehydrate Ramsey 1

Strengthening, Enhancing, and Protecting Water Resources

The City of Ramsey is rich in water resources, including the Mississippi River, Rum River, various lakes, and scores of wetlands. As the City updates its comprehensive plan, it aims to **develop innovative strategies to identify, protect and communicate the value of water resources to the public**. By ensuring a high-quality, reliable water supply for all users through economically viable conservation solutions, the City can secure quality of life for years to come. In this project **we identify the importance of water resources, the challenges Ramsey may face** if protection and conservation efforts are not enhanced, **and the value that could be realized** from a proactive approach.

Map of Natural Features for the City of Ramsey



The map to the left illustrates the multitude of natural resources in the City of Ramsey. Regional governance bodies have expressed concern with the state of water resources in particular.

"The DNR and Metropolitan Council (Met Council) have expressed concern that development and increasing water demand in...Ramsey may exceed their groundwater resources to sustain both human and ecological needs."[1]

Following this charge, this project focuses on water resources. They are a vital part of everyday life for Ramsey residents, from household and commercial activities to recreational uses.


Source: http://bit.ly/2AkLTzV


Source: (c) Steve Schneider, 2017


Source: (c) Steve Schneider, 2017

THE GOALS OF THIS PROJECT:

- **Identify best practices or strategies for inventorying** Ramsey's water resources and prioritizing high-value water resources for protection or restoration.
- **Identify best practices or strategies to conserve,** restore, and/or enhance water resources through incentives, regulatory controls, public-private partnerships, and other mechanisms.
- **Frame Concepts** for developing a comprehensive outreach program focused on communicating the value of water resource protection to residents, business owners, and future land developers.

THE METHODS OF THIS PROJECT:

- **Review water resource** inventory precedents, including Ramsey's past Natural Resource and Wetland inventories.
- **Research inventory,** conservation, and outreach best practices from similar communities in Minnesota and beyond.
- **Conduct four land use analyses** focused on Water Assets, Water Conservation, Groundwater Quality, and Stormwater Management to inform best practices and recommendations.

WHY REHYDRATE RAMSEY?

ECONOMIC BENEFITS

Clean water resources improve the bottom lines of businesses, cities and private residents. As we explore the water resources of Ramsey we will outline the savings that accompany conservation.

PRESERVING RAMSEY'S CHARACTER

Keeping our water resources clean and plentiful allows the community to continue enjoyings its beautiful natural ammenities.

RAMSEY'S HEALTH

Currently the water supply for Ramsey is shrinking. With population increases we need to ensure that both present and future residents have access to clean water.

PROJECT OUTLINE

INTRODUCTION → INVENTORY → WATER ASSETS → CONSERVE → GROUNDWATER → STORMWATER → BEST PRACTICES → BENEFITS → CONCLUSION

As Ramsey updates its comprehensive plan, conversations around the value of water will be essential to the process. Understanding the role that water plays in economic vitality, community character, and population health is key to crafting an effective and citizen-supported water protection plan. The first step in this process is to complete an updated water resources inventory that accurately defines the risks and opportunities present across Ramsey's water assets. In the next poster, we take the first step by exploring inventory precedents.

[1] Anoka County Water Resources Report, 2014 (http://bit.ly/2BGaVaG)

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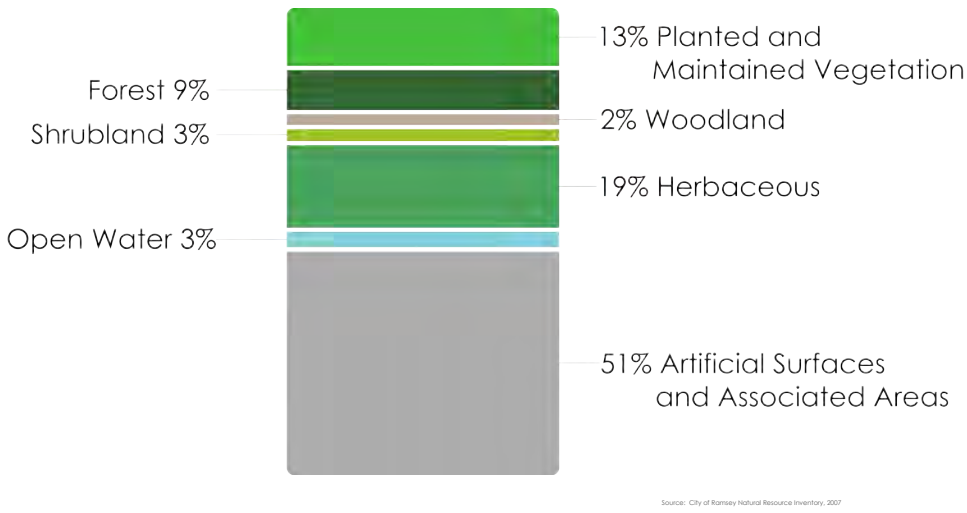
Inventory Precedents + Next Steps

An updated water resources inventory will allow the City of Ramsey to accurately assess the **risks to existing water assets** and devise **targeted solutions** to address them. In this poster we present selected observations from two previous inventories to show the value of existing precedents, then suggest a framework for moving forward. By building on the valuable observations from past reports, the City can create a foundation to invest in **water security** for the **economic vitality** and the **well-being** of the community.

NATURAL RESOURCE INVENTORY: PRECEDENT 1

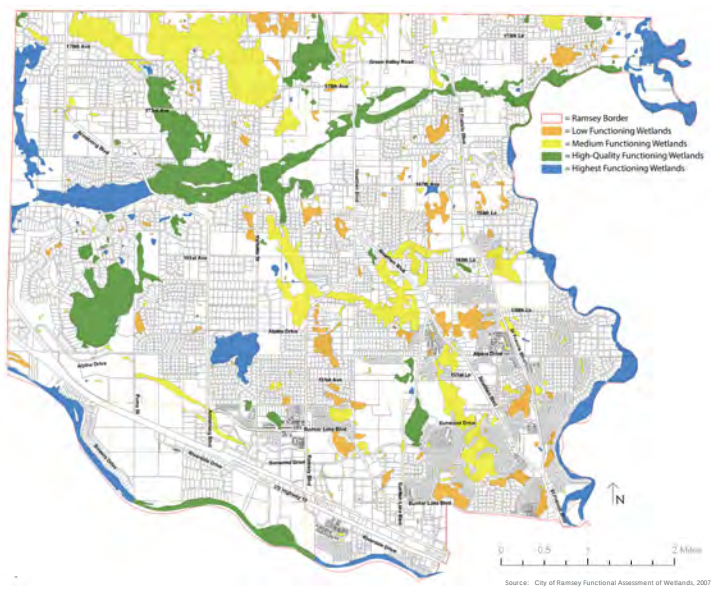
In 2007, with the help of a consultant, **the City of Ramsey completed a Natural Resource Inventory**. The stacked bar chart at right shows the distribution of land cover within the city's borders. **Open water, which includes lakes, rivers, and creeks, makes up 3%** of the more than **19,000** acres that form the city's total area. **Another 22% is comprised of wetland cover**, which includes the Shrubland and Herbaceous categories at right. The full list of goals and objectives for the inventory included the following, among others:

- Identify and inventory significant natural areas.
- Locate and complete a field evaluation of Natural areas
- Guide policy development
- Identify:
  -Open space with public value
  -Natural areas with restoration potential
  -Potential/suitable greenway corridors



WETLAND INVENTORY: PRECEDENT 2

Wetland Management Classification Map for the City of Ramsey



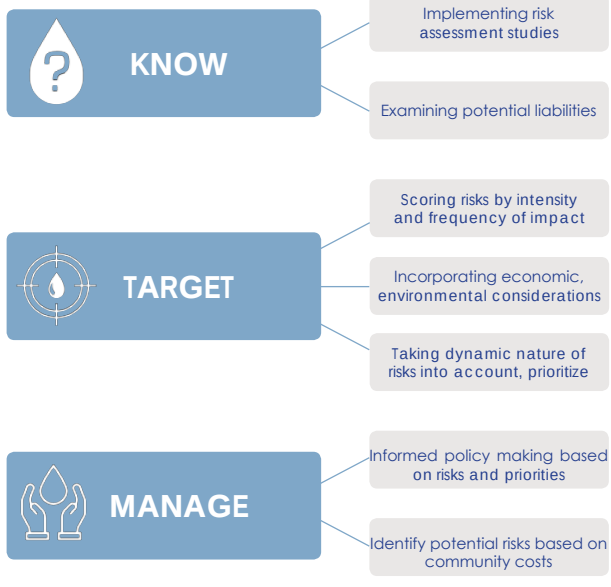
In 2006–2007, the City of Ramsey also completed a functional assessment of wetlands. Consultants used GIS data to identify and classify **349** wetlands, and at the City's request **136** received full field assessments. Each wetland was assigned to one of four categories based on quality, which can be seen in the map at left.
Wetlands are classified into one of four categories based on at least one of the characteristics described in the partial list below:

- **Exceptional and highest functioning wetlands**
  Exceptional vegetation, wildlife habitat and fish habitat. High shoreline protection and water quality.
- **High-Quality Wetlands**
  High vegetation, wildlife habitat and fish habitat. Medium shoreline protection and high water quality.
- **Medium Functioning Wetlands**
  Medium vegetation, wildlife habitat and fish habitat. Low shoreline protection.
- **Low Functioning Wetlands**
  Low vegetation. All others not fitting the above categories

WHAT DOES A NEW INVENTORY LOOK LIKE?

In the future, we recommend the City of Ramsey develop a comprehensive integrated water resource inventory that incorporates community values and uses models similar to the water risk-management tool to the right. This model provides guidance in prioritizing and targeting water risks, identifying the acceptable level of risk, and designing local water policy, legislation, regulations and institutional responses that are appropriate to the extent of the risk.

Future inventories and assessments should also rely on and reference community values. In the 2007 Natural Resource Inventory referenced above, Ramsey's community values were used to frame the purpose of the inventory, which increases community support. The final report for the wetland assessment did not address these values, and as a result appears less useful in communication with the public.



Completing an updated water resource inventory will involve the identification of Ramsey's many water assets. Painting an accurate picture of the current state of these valuable resources will help the community craft targeted next steps for improvement. In the next poster, we explore a selection of Ramsey's rivers, lakes, and wetlands.

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Identifying Water Assets

Water assets include valued water resources, such as lakes, rivers, and wetlands located in the City of Ramsey. It is important to identify the city's water assets because they are essential to the city's physical, social, and economic health. **The identification of the challenges and opportunities of water asset management is crucial to envisioning a sustainable and resilient Ramsey.** In this poster we will examine a few existing water assets in the City of Ramsey.

WHAT DO RAMSEY'S WATER ASSETS LOOK LIKE?

Source: Author

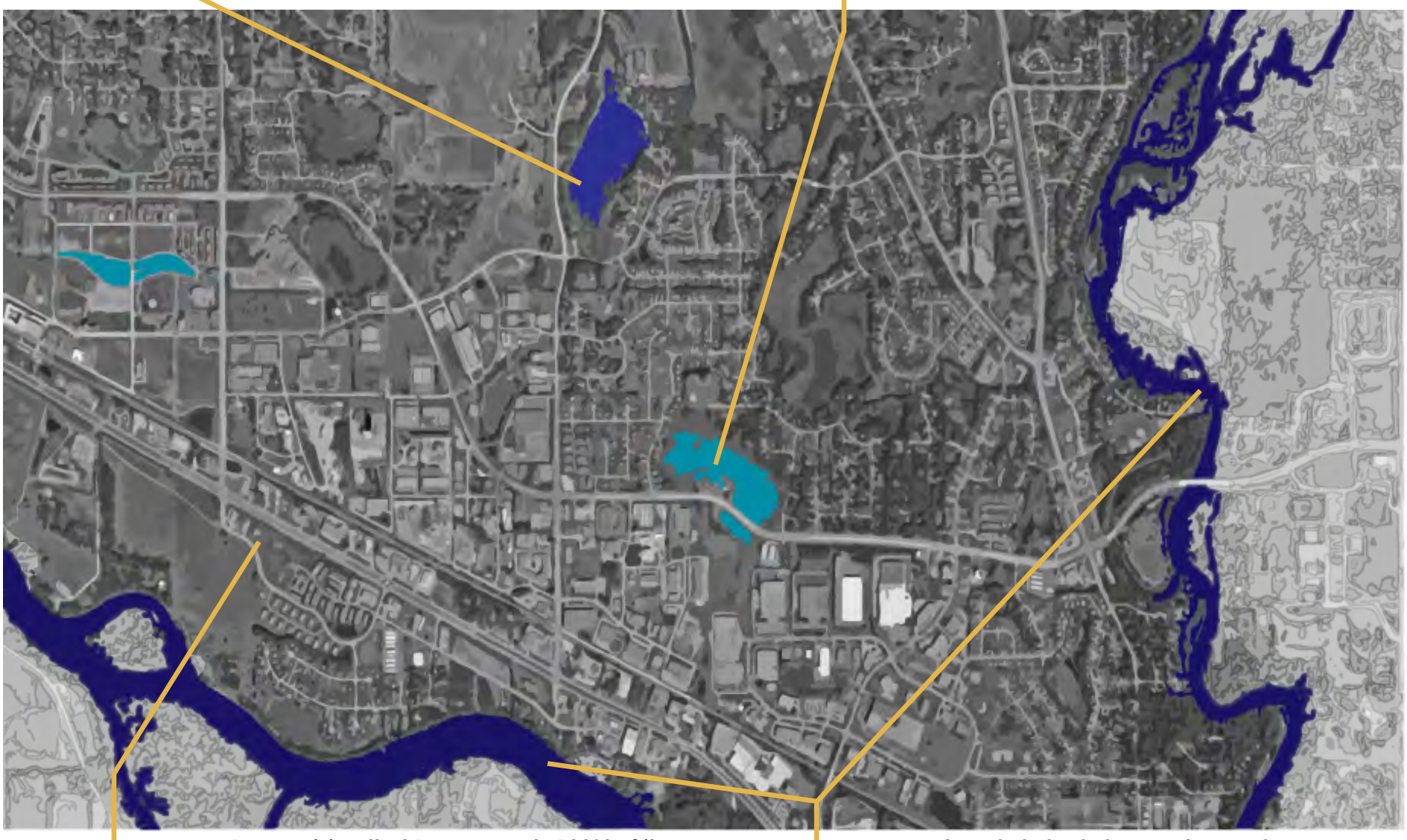
Lakes such as Sunfish Lake respond to changes in inflows and outflows, which have led to drying of shoreline habitats. Lakes are particularly sensitive to increases in sediment concentrations and chemical pollution. Protecting this water resource from sewage and fertilizer runoff is vital to improving its quality.

Challenge: Nutrient pollution
Opportunity: Recreational amenities

Source: Author

Wetlands in Ramsey are susceptible to development and pollution from urban runoff. Wetlands provide flood protection, shoreline erosion control, and opportunities for recreation and aesthetic appreciation.

Challenge: Loss to development
Opportunity: Natural flood protection



Source: http://bit.ly/2BSOC1Q

Recognizing that Ramsey gets 100% of its water supply from groundwater is vital to protect this resource for future growth. Groundwater in Ramsey is currently affected by high levels of extraction, calling into question its long-term viability as a water source.

Challenge: Depletion
Opportunity: Increased water supply

Source: Author

The Mississippi River and Rum River are currently affected by erosion and sediment transport. The release of large loads of contaminants into waterways increases soil and water impairment (including salinity), impacting many uses such as recreation, consumption and overall public health. (See Mississippi Shoreline project for details).

Challenge: Shoreline erosion **Opportunity:** Improved wildlife habitat

To protect its unique set of water assets, the City of Ramsey will have to deploy a range of innovative conservation solutions. From rainwater harvesting to increased street sweeping, steps must be taken to alleviate the strain on groundwater, reduce the amount of pollution entering wildlife habitat, and address a host of other water-related issues. In the next poster, we address the need for conservation and introduce an initial set of solutions.

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Conserving Water for Generations to Come

The City of Ramsey is consistently one of the **top ten users of water in the Metro area**, and if Ramsey continues at this rate of consumption, they will have to retrofit their water infrastructure in the future to sustain the population. This will cost millions of dollars. This poster evaluates options **to conserve water now**.

MORE USE TODAY = LESS WATER FOR TOMORROW

2016: Ramsey uses **600,435,000 gallons**[1] of water from underground aquifers

2040: Ramsey is projected to use **1,009,571,409 gallons**[2] of water from underground aquifers

HOW DO WE CONSERVE?

PROTECT GROUNDWATER

The first step to conservation is to protect what you have. With groundwater being the single source for water in the city of Ramsey it is important to implement land use practices that best protect underground water immediately.

"Promote land use practices and best use practices that **minimize impacts on aquifers and maximize groundwater recharge**, where practical." [3]

In urbanized areas with high percentages of impervious surfaces, water runoff increases and infiltration decreases. This results in reduced levels of groundwater and decreased water quality in our rivers, lakes, wetlands and aquifers.

In areas broken up by green space, infiltration increases and runoff decreases. Limiting impervious surfaces in Ramsey's urban center to **35-50%** will substantially improve water quality in creeks and rivers.

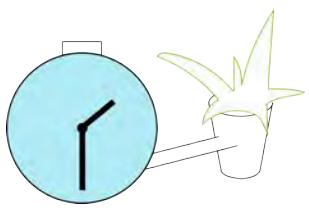
Recommendation:
New projects need to **implement and promote the construction of green spaces** immediately. **Grants for residential raingardens** from the city and rebates for any development which **reduces impermeable surfaces to 50% or below** are two possible strategies.

FIND OTHER SOURCES

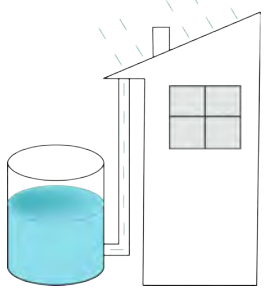
Diversifying water options is a critical step in water conservation. Ramsey should not rely on one source that can easily be depleted over time, but rather spread out water usage over various sources of drinking water.

"To **supplement groundwater and surface water**, investigate reusing treated wastewater as sources of nonpotable water to support regional growth, and when cost-effective, **implement reuse.**" [4]

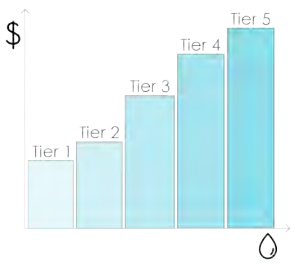
Recommendation:
Rebates for responsible irrigation. This includes self-adjusting irrigation timers, moving to in-line irrigation from sprinklers and replacement of high-water lawns with sustainable landscapes.



Recommendation:
With **rainwater harvesting**, a **1000 sq ft**. roof can harvest **11,119 gallons** a year[6] which can be used for landscape irrigation.



Recommendation:
Increase current tiered costs for water usage: increase rates for users that are using over **100%** of the baseline use, with increasing rates as the percentage over gets higher.



REDUCE POLLUTION

Non-point source pollution from agricultural and urban runoff is one of the biggest contributors to ground and surface water degradation. Finding ways to mitigate this pollution is critical to maintaining healthy water resources.

"Install and monitor innovative **non-point-source pollution reduction practices** at Council facilities and support economically feasible projects that demonstrate new technologies." [5]

Recommendation:
A **high-efficiency street sweeping program** that targets chemicals and organic materials that end up in our water runoff will substantially increase water quality. Street sweeping also improves visual aesthetics and road safety. Right now Ramsey conducts street sweeping in the early spring and late fall, but the practice should **continue through the summer months,** when it could have a greater effect.

Conservation is the most critical step in providing water resources for generations to come. No treatment plant can fully replenish what we've already used, it is only a temporary remedy to the larger problem of consumption. The way Ramsey can address this is to focus on groundwater, as we will see in the next poster.

[1] Calculated using the 2016 municipal water use data, as well as an average daily household assumption for private wells.
[2] Calculated using the water usage projections for Anoka County (http://bit.ly/2BGaVqG) as well as average daily household assumptions for private wells.
[3,4,5] Identified in the Metropolitan Council 2040 Water Resources Policy Plan, pg. 39 http://bit.ly/2BGaQAA
[6] See Poster 9 for more information

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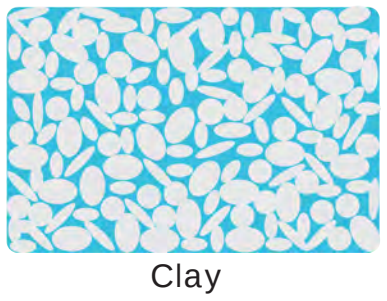
Groundwater Quality Implications for Land Use

Groundwater is where Ramsey gets 100% of its drinking water, therefore it is vital to keep groundwater clean, plentiful and protected now and as Ramsey continues to grow. Groundwater sources are connected across Ramsey and beyond its borders, so it is important to look at existing land use comprehensively to understand the implications for groundwater.

RAMSEY'S SOIL AND WHAT IT MEANS FOR GROUNDWATER

Ramsey's most recognizable geologic feature is the relatively flat sand plain on which it is located. This glacially deposited sand feature is named after the county: Anoka Sand Plain. Sandy soils have large pores in between each particle which results in a high infiltration rate but does not allow for contaminants to be filtered as the water moves through the soil down into the water table.

Sand



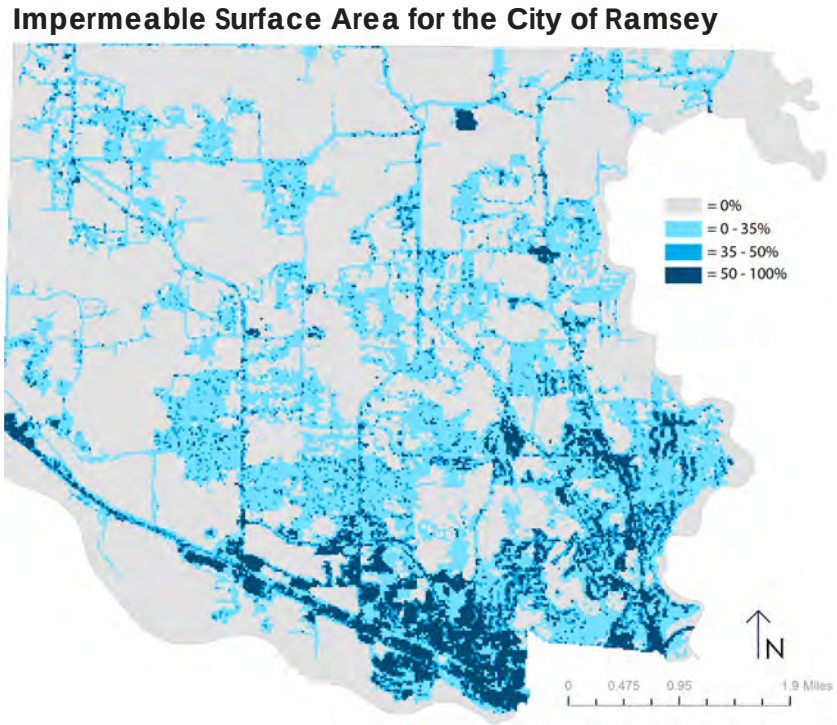
Clay

Why Does Soil Type Matter?

Drinkable water being used in urban irrigation means that clean water is moving quickly through heavily fertilized soils and into underground water reserves, resulting in contamination. The high rate of infiltration results in an overuse of water as the water moves quickly through the sand preventing plants from taking in water. In a study looking at ground water quality in the Anoka Sand Plain, **homes that overwater their lawns by 3.75 cm/week of water see a 10x increase in nitrogen loss in their lawns.**[1] This means that nitrogen is flowing through the soil and into the water table.

WATER INFILTRATION THROUGHOUT THE CITY

Impermeable Surface Area for the City of Ramsey



Aquifers are recharged when water has a chance to infiltrate into the ground, usually from rainfall. Ideal deep infiltration to groundwater happens at **50%** or less impermeability of surface material. **Currently Ramsey has areas which are 50%-100% impermeable, mostly in the urban city center.**

Since Ramsey gets **100%** of its water from underground sources, it is important to replenish those sources. An easy way to do this is to create infiltration zones in areas that have low permeability. **These zones allow water to filter into the ground**, removing contaminants and slowly refilling aquifers so that Ramsey continues to have a steady water supply.

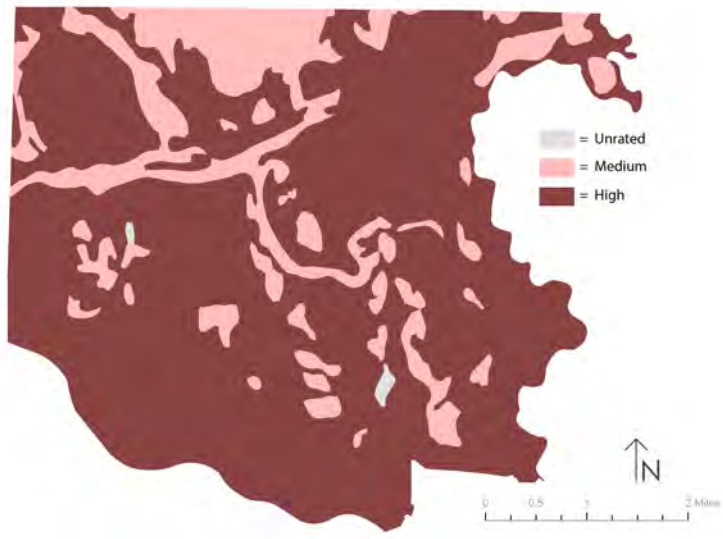
Since the COR is slated for more development, it is important to ensure that **any new development plans aim for 50% or less impermeability** to increase the amount of deep water infiltration. This, combined with the current topsoil ordinance, will allow for healthy, clean water sources as Ramsey continues to expand.

HOW DO WE PROTECT OUR GROUNDWATER?

The map to the right, created using data from the Minnesota Department of Agriculture, shows the areas that are susceptible to contamination of groundwater. It is evident that most of the city of Ramsey is high in vulnerability which means it is essential that all parts of **the city follow land use practices that limit the amount of contamination** that ends up in the water table.

Recommendation:
Incorporate green spaces in areas of high vulnerability that allow for infiltration without contamination. These can include rain gardens, tree wells, and permeable pavement. Suggestions can be found on posters 6 and 7.

Groundwater Vulnerability for the City of Ramsey



Now that we've taken a look at groundwater risks, the next step is to explore stormwater. Pollution carried by this excess runoff can infiltrate into groundwater and affecting drinking water supplies. In the next poster we'll take a look at urban design solutions to this problem, as well as how to deal with areas of high vulnerability.

[1] Found in a study of: Trojan, M. D., Maloney, J. S., Stockinger, J. M., Ed, E. P., & Lahtinen, M. J. (2003). Effects of Land Use on Ground Water Quality in the Anoka Sand Plain Aquifer of Minnesota. Ground Water, 41(4)

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Stormwater: Reducing Pollution Through Resilient Infrastructure

Stormwater is excess surface water from precipitation or flooding. Minimizing this runoff and the pollution it carries is key to a comprehensive water plan. In this poster we explore strategies to **increase infiltration and decrease runoff** through infrastructure and policy choices. We'll also examine the **unique challenges** created by the presence of Wellhead Protection Areas in Ramsey.

HOW CAN URBAN DESIGN ADDRESS STORMWATER ISSUES?

Presettling Zone

Tree Wells

Urban areas with impervious surfaces like parking lots and streets increase the amount of polluted runoff entering bodies of water. Turning some of these areas into pervious surfaces creates a natural filtration system.

The goal of **resilient stormwater design** is to increase the amount of water that is absorbed where it falls rather than traveling across impervious surfaces. The photos on the left show four common examples.

Bioretention Planter

Permeable Parking Lane

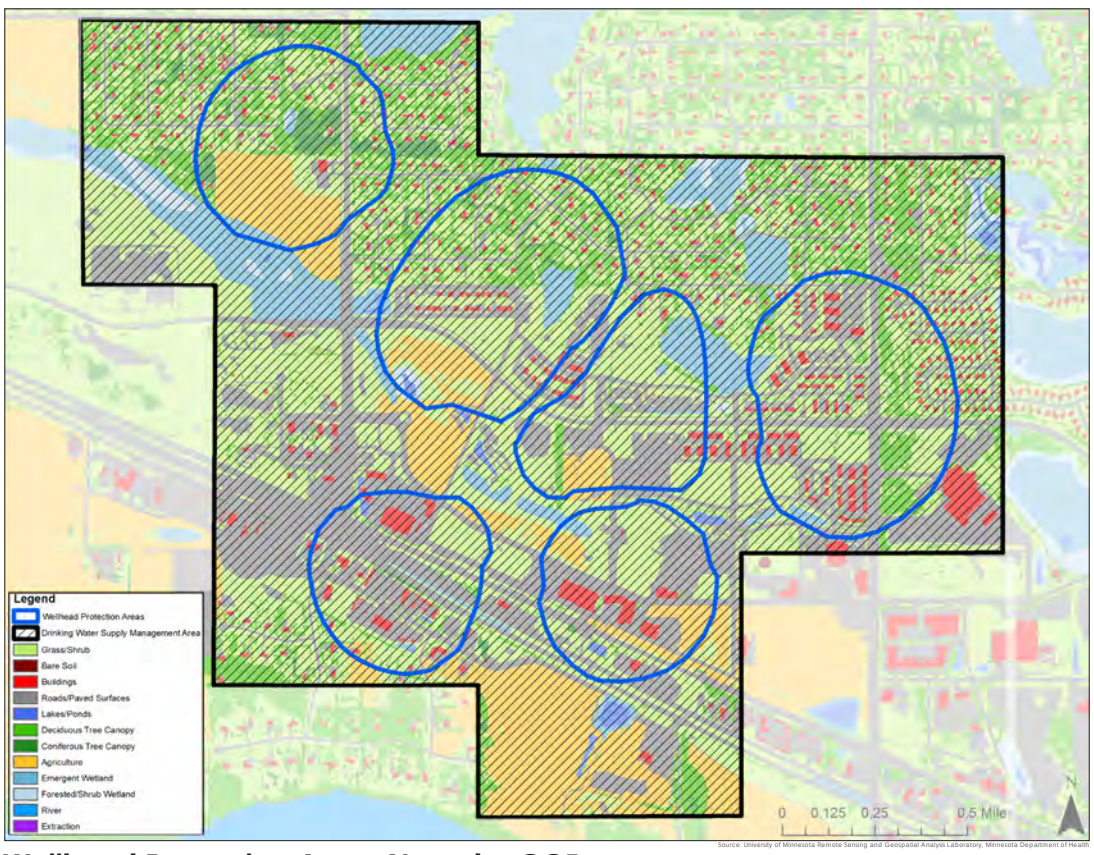
Narrow Streets for Improved Resilience

As part of the street reconstruction process in Crystal, MN, streets are being evaluated for narrowing. Permitting construction of 22-foot streets in areas with fewer than 400 daily trips not only reduces the overall share of impervious surface, it also improves pedestrian safety and reduces the cost of initial construction and lifetime maintenance. Street reconstruction also creates a perfect opportunity to implement best practices.

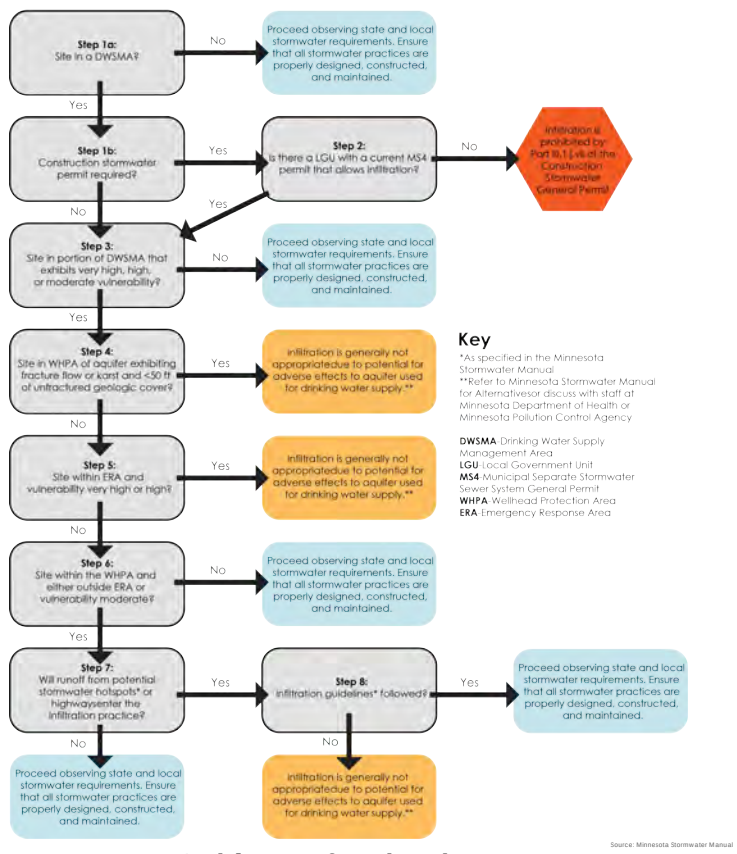
More information: http://bit.ly/2ANNi2d

PROTECTING DRINKING WATER SOURCES FOR THE FUTURE

The Minnesota Department of Health (MDH) regulates drinking water in the state, and designates areas of vulnerability as Drinking Water Supply Management Areas (DWSMAs). MDH recommends special attention be paid to stormwater infiltration strategies in these areas to avoid drinking water contamination from infiltration. The map below shows an area of moderate drinking water vulnerability in Ramsey and areas designated as Wellhead Protection Areas. The decision tree to the right from MDH can be used to select appropriate stormwater interventions.



Wellhead Protection Areas Near the COR



Stormwater Guidance for Sites in DWSMAs

Some of the WPAs have significant areas of impervious surface, making them prime candidates for the introduction of novel best practices that address stormwater issues and protect vital drinking water supplies. These practices should be incorporated into any future updates to Ramsey's Wellhead Protection Plan, a document that is required by MDH. The City is currently devising strategies to address stormwater in the COR in particular.

More information: http://bit.ly/2zUWH6l

Now that we've examined water in Ramsey from multiple perspectives, the next step is to explore solutions. A wide range of innovative solutions are available, but we'll examine a few possibilities in detail. By combining **incentives, regulatory tools, and public-private partnerships**, we can use all the tools at our disposal to support and improve Ramsey's supply of clean water.

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Best Practices for Management and Conservation

The City of Ramsey has tools to transform an updated water resources inventory into action to support water stewardship. Through a combination of **incentives, regulatory frameworks, and public-private partnerships,** clean water for **drinking, recreation, and industry** can be secured for years to come.

INCENTIVES

Start a "Living Cover" Revegetation Program

Living cover near the Mississippi River in Ramsey — Source: Author

- Planting native grasses and other perennial vegetation (living cover) around bodies of water creates a natural filtration system
- Incentives for property owners can encourage this practice

More information: http://bit.ly/2zjXn3b

Provide Rebates For Residential Best Practices

An example of a rain garden — Source: Minnesota Stormwater Manual

- Rebates give homeowners a stake in water resource protection
- They create rewards for good stewardship
- Rebates allow residents to select the best strategies for their property

More information: http://bit.ly/2xTWKPL

Provide Incentives to Developers for Implementing Best Practices

Stormwater infrastructure in the Maplewood Mall parking lot, Maplewood, MN — Source: Minnesota Stormwater Manual

- Development incentives attract investment and promote conservation
- Rain gardens, pervious pavement, tree trenches, and other best practices can be rewarded with an expedited review process or other incentives

More information: http://bit.ly/2kho7OF

REGULATORY TOOLS

Reduce Non-Point Source Pollution

Stormwater infrastructure in Ramsey — Source: Author

- Non-point source pollution includes organic matter on streets
- Increasing the frequency of street sweeping is one way to reduce this type of pollution
- See poster 4 for more details

More information: http://bit.ly/2hMUMHQ

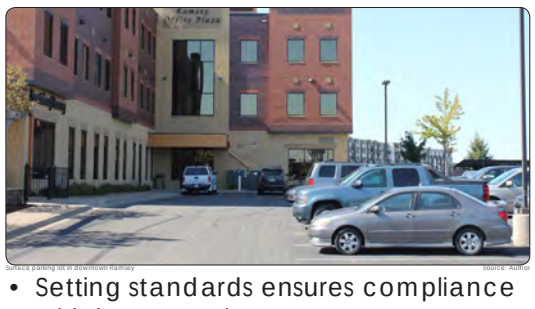
Create a Lake Improvement District

Sunfish Lake in Ramsey — Source: Author

- A Lake Improvement district gives power to landowners
- LIDs address impacts on surface water quality, wildlife habitat, or other issues of concern to property owners with land adjacent to lakes

More information: http://bit.ly/2zjXn3b

Establish Impervious Surface Standards for New Development



Surface parking lot in downtown Ramsey — Source: Author

- Setting standards ensures compliance with best practices
- They create local examples for possible infrastructure improvements in existing developments
- See poster 4 for more details

More information: http://bit.ly/2izOmiM

PUBLIC-PRIVATE PARTNERSHIPS

Adopt-a-Wetland Program

The Draw, a water feature in Ramsey's "COR" development area — Source: Author

- Adopt-a-Wetland programs give local businesses a visible leadership role in water stewardship
- This helps communicate the value of water stewardship to the broader community

More information: http://bit.ly/2zjXn3b

Partner With Businesses to Implement Rainwater Catchment Systems

Trail Brook in Ramsey — Source: Author

- Catchment systems collect stormwater and reduce water costs
- Harvested water is commonly used for landscape purposes
- Also applicable in residential context
- See poster 4 for more details

More information: http://bit.ly/2bazJss

Start a Stormwater Infrastructure Cost-Sharing Program

Native prairie plantings in Ramsey help reduce stormwater runoff — Source: Author

- In a cost-sharing program, the City can provide full or partial funding
- The City receives a conservation easement and a commitment to ongoing maintenance and upkeep by the property owner

More information: http://bit.ly/2kho7OF

By utilizing a set of best practices that includes incentives, regulatory tools, and public-private partnerships, Ramsey can encourage community-wide water stewardship. These efforts can provide a wide range of benefits including cost savings, improved wildlife habitat, increased property values, and an increased supply of water for a variety of uses.

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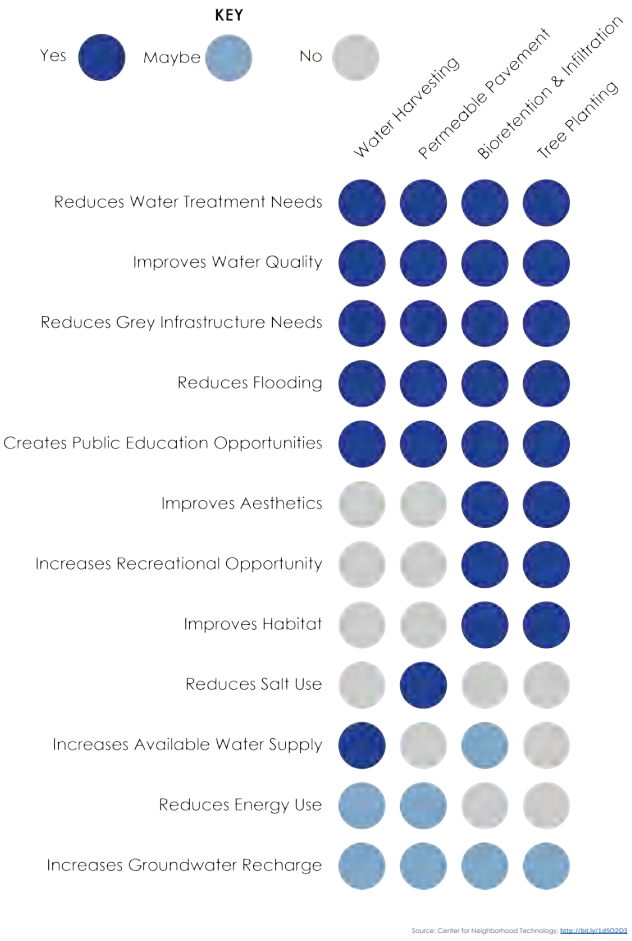
Quantifying the Benefits of Better Water Management

Good water stewardship can provide Ramsey with many community and economic benefits, including **increased property values**, **reduced water demand**, **better water quality**, and **improved wildlife habitat**. The costs of inaction are significant. Water sources can become permanently impaired, and remediation efforts are costly. In this poster, we explore a few opportunities in greater detail.

Resilient Water Infrastructure Creates Cross-Sector Benefits

The chart below shows the wide range of benefits provided by a selection of common water infrastructure best practices.



Source: Center for Neighborhood Technology, http://bit.ly/1dSO2D3

Protecting Property Values: Research on Water Quality Impacts

A number of studies in Minnesota and other states have linked water quality, measured in water clarity and quantity of pollutants like nitrogen and phosphorus, to property values. The relationship as described by these studies is shown below:

In one study of nutrient runoff, a 1 mg/L increase in nitrogren loading reduced the average property value by **$7,713**. A 1 mg/L increase in phosphorus loading reduced property value by **$27,624**. A 1 meter improvement in water clarity improved value by **$95,132**.

Source: http://bit.ly/2AELSia

1	+1 meter	increase in water clarity	=	+$95,132	increase in average property value
2	+1 meter	increase in water clarity	=	+$11-$200	per linear foot increase in lakefront lot value
3	-1 meter	decrease in water clarity	=	-$300	per linear foot decrease in lakefront lot value
4	+1 mg/L	increase in nitrogren loading	=	-$7,713	decrease in average property value
5	+1 mg/L	increase in phosphorus loading	=	-$27,624	decrease in average property value
6	-3 feet	decline in lake water clarity	=	-$70	per foot of shoreline

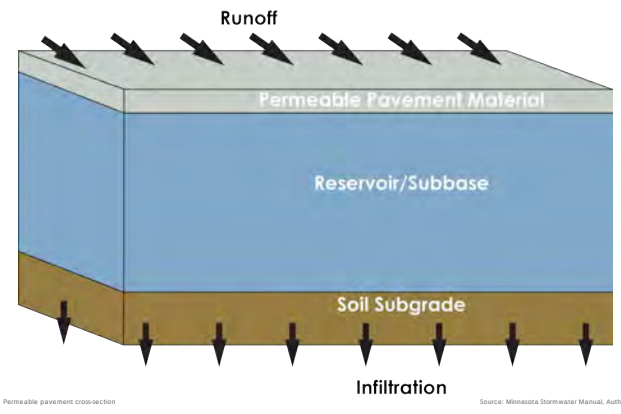
Source: http://bit.ly/1ALuttk

Source: http://bit.ly/2AELSia

Source: http://bit.ly/2zBeMqV

Reducing Road Salt Costs

- **Pervious pavement** can reduce the amount of road salt needed in winter months by **up to 75%,** reducing costs.
- Road salt also contributes to surface water pollution, so reducing the amount used **results in better wildlife habitat and aquifer health.**



Permeable pavement cross-section

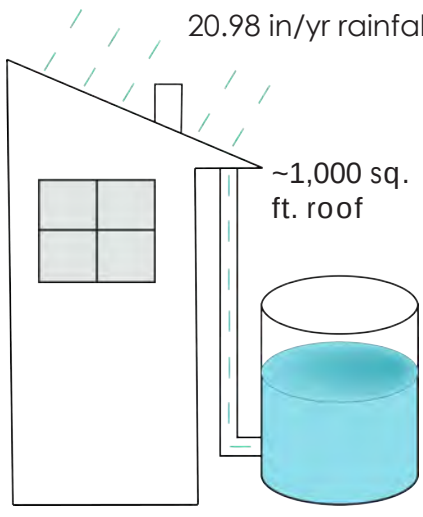
Source: Minnesota Stormwater Manual, Author

- Permeable pavement also delays frost layer formation, and it allows melt water to infiltrate, **reducing the amount of ice created by refreezing.**

Source: Center for Neighborhood Technology, http://bit.ly/1dSO2D3

Decreasing Demand Through Water Harvesting

- A single-family homeowner in Ramsey who implements a **rain barrel catchment system** can expect to collect roughly **11,119 gallons of water** over the course of one year.
- **A cost-sharing program** would incentivize this practice.
- If all single-family homeowners implemented this strategy, the city would collectively have over **75 million gallons** of water available for use.



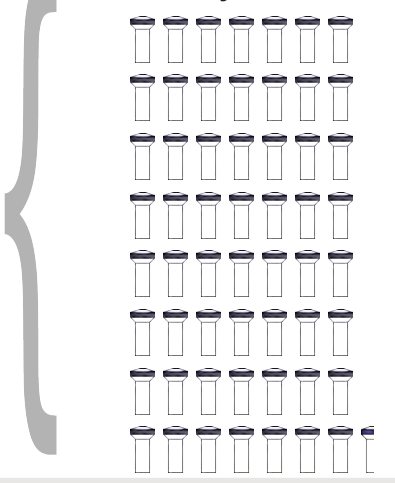
= **11,119 gallons/ year**

X

6,776 single family detached homes

= **75 million gallons/ year**

75 million gallons = 56.5 Ramsey Water Towers



*annual rainfall (inches) * area of surface (SF) * 144 sq inches/SF * 0.00433 gal/cubic inch * 0.85 collection efficiency = water available for harvest (gal)*

Source: Center for Neighborhood Technology, http://bit.ly/1dSO2D3

Ramsey has the potential to reap a wide range of benefits by protecting and preserving water quality. Some small steps today can help support larger changes tomorrow, securing a **healthy, productive future for the residents of Ramsey.** An updated water resources inventory is the first step in planning for Ramsey's future water needs.

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Bringing It All Together

As the City of Ramsey continues to grow, the water issues discussed in the preceding posters will only become more apparent. In this poster, we retrace our steps through the measures required to make Ramsey a resilient city in the face of future water management risks.

Existing Conditions

POSTER 2

To best assess the future of Ramsey's water it is important to conduct a thorough inventory of the current water resources in the city. A water inventory allows the City of Ramsey to know which areas of water management to target.

POSTER 3

An updated inventory will help us grasp the risks and opportunities posed by Ramsey's water assets. This assessment allows the water assets to be ranked, and priority to be placed on high ranked assets such as rivers and lakes.

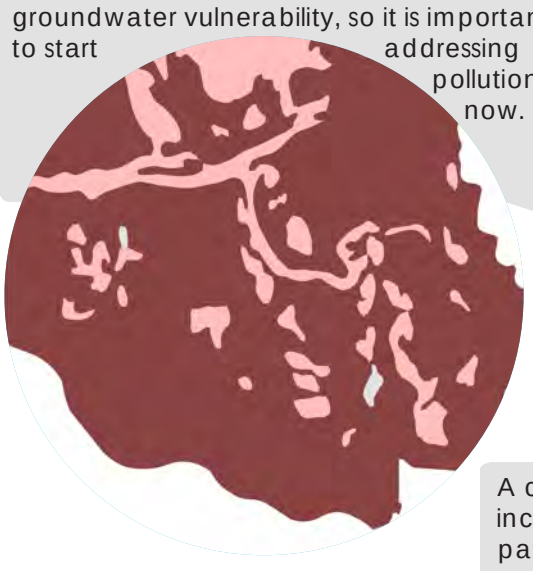
Identifying value in water

POSTER 4

Conservation looks at the different water assets that Ramsey has and prioritizes strategies that protect the most vulnerable areas first. Techniques include limiting consumption of groundwater and reducing pollution from non-point sources.

POSTER 5

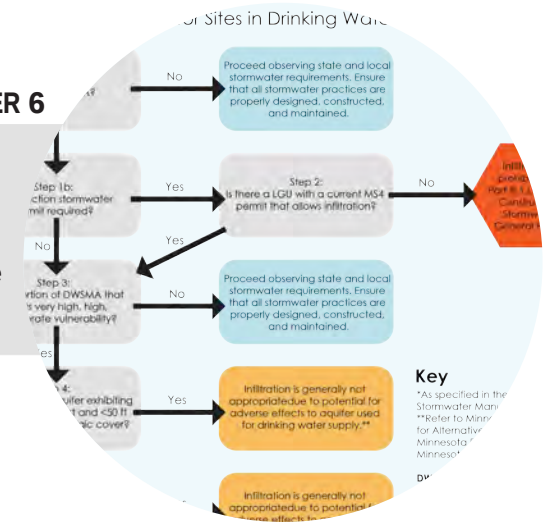
Groundwater is Ramsey's most vital water resource and land use practices should work to protect groundwater. Most of the City of Ramsey is located in an area of high groundwater vulnerability, so it is important to start addressing pollution now.



Community conservation

POSTER 6

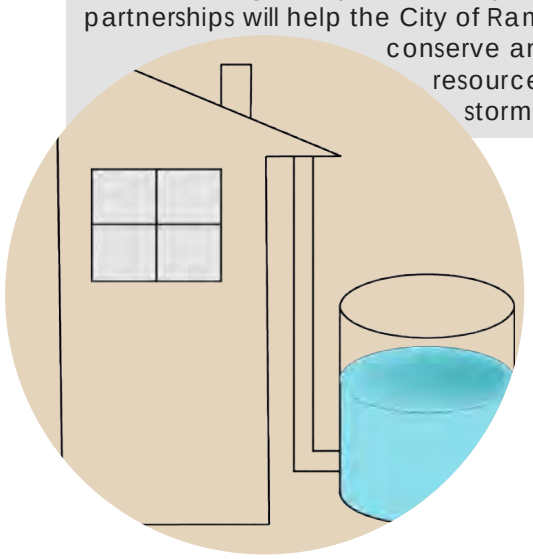
Stormwater is a major source of contamination for ground and surface water. Innovative urban design solutions that also protect drinking water will be a key piece of the solution to Ramsey's water challenges.



Business Participation

POSTER 7

A combination of best practices that includes incentives, regulatory tools, and public-private partnerships will help the City of Ramsey best conserve and protect water resources and limit stormwater runoff.



POSTER 8

These steps will lead to a wide range of benefits for the City of Ramsey and its residents, including increased property values, a steady drinking water supply, and improved wildlife habitat.

City-supported strategies

Economy
Health
Character

With an integrated approach that addresses all facets of water, Ramsey will be well-positioned to accommodate the demands of projected growth. With an updated water resources inventory in hand and a set of proposed strategies to address water conservation, groundwater, and stormwater, the City will be ready to engage the community in a conversation about one of its most valuable assets. These strategies are essential to maintaining future economic prosperity and preserving Ramsey's character and health. By including them in the current comprehensive plan update, the City can take the next step towards cleaner and more abundant water for all.

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